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MINERAL INDUSTRY SURVEYS

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Vanadium, Monthly

VANADIUM IN AUGUST AND SEPTEMBER 1993

The total reported consumption of vanadium in August was about 14 percent more than consumption in July, according to the U.S. Bureau of Mines. Total consumption in September was up by nearly 2 percent over August consumption. In the steel end use categories, all of the increases occurred in the carbon and full alloy sectors. In the non-steel categories, the superalloys sector reported a modest 5 percent increase. Total consumption in September was 320 metric tons or about 7 percent less than consumption in September 1992.

Strategic Minerals Corp. (Stratcor), Danbury, CT, announced an agreement under which it will exclusively market ferrovanadium (FeV) from Russia's largest FeV producer, Tulachermet Corp., in North America. Tulachermet produces a 52 percent FeV that is low in aluminum which, according to Stratcor, will be advantageous to continuous casting operations and producers of low-aluminum products. The agreement will result in the curtailment of FeV production at the company's Niagara Falls, NY, plant. About half of the 80 workers at the New York plant will be laid off. The plant has an annual capacity of about 4,000 tons per year of FeV. Stratcor also formed an alliance with Bear Metallurgical Corp., Butler, PA, to toll convert vanadium pentoxide (V_2O_5) produced at U.S. Vanadium's Hot Springs, AR, plant into FeV. U.S. Vanadium is a subsidiary of Stratcor. The Hot Springs plant will be expanded to supplement specialty vanadium chemicals and vanadium-aluminum operations at Niagara Falls. An expansion at Stratcor subsidiary Vametco in Brits, Republic of South Africa, will produce FeV to be marketed in Japan and Europe. The Brits expansion will totally integrate the facility, bringing total vanadium capacity there to about 10 million pounds per year, including FeV, Nitrovan, and V_2O_5.

Update: U.S. specialty alloys trader Metallurg Inc. announced on September 3, 1993, that it had filed a voluntary petition for protection from its creditors under Chapter 11 of the U.S. Bankruptcy Code. Included in the filing was Shieldalloy Metallurgical Corporation with manufacturing facilities in Cambridge, OH, and Newfield, NJ.

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Monthly Prices-9/30/93:
Ferrovanadium, 80% V, $4.15-$4.35/lb. V
V_2O_5, U.S. producer, $1.35-$1.40/lb.

Prepared in the Branch of Metals and the Branch of Data Collection and Coordination, December 16, 1993.

TABLE 1
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM

(Kilograms of contained vanadium)

Form	Consumption July 1993	Stocks July 31, 1993	Consumption August 1993	Stocks August 31, 1993	Consumption September 1993	Stocks September 30, 1993
Ferrovanadium1/	r/255,482	r/272,028	286,190	266,355	298,333	284,471
Oxide	(2/)	9,712	(2/)	9,114	(2/)	8,483
Vanadium-aluminum alloy	r/18,535	(2/)	(2/)	(2/)	(2/)	7,788
Vanadium chemicals3/	r/14	r/2,123	226	1,896	226	1,896
Other4/	r/886	r/24,617	27,884	13,928	21,861	W
Total5/	r/274,916	r/308,479	314,301	291,294	320,420	302,638

r/Revised. W Withheld to avoid disclosing company proprietary data.
1/Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.
2/Withheld to avoid disclosing company proprietary data, included with "Other."
3/Includes vanadates, chlorides, and other specialty chemicals.
4/Includes other vanadium alloys, vanadium metal, and items indicated by footnote 2/.
5/Data may not add to totals shown because of independent rounding.

TABLE 2
U.S. CONSUMPTION OF VANADIUM, BY MONTH

(Kilograms of contained vanadium)

Period	Ferro-vanadium1/	Other2/	Total3/
1993:			
January	263,172	30,868	294,040
February	276,853	32,272	309,125
March	291,604	r/32,552	r/324,156
April r/	270,346	24,880	295,226
May r/	272,398	28,493	300,891
June r/	271,402	38,803	310,205
July r/	255,482	19,434	274,916
August	286,190	28,110	314,301
September	298,333	22,087	320,420
Year to date	2,485,780	257,499	2,743,280

r/Revised. W Withheld to avoid disclosing company proprietary data.
1/Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.
2/Includes other vanadium alloys, chlorides, specialty chemicals, vanadates, and vanadium metal.
3/Data may not add to totals shown because of independent rounding.

TABLE 3
U.S. CONSUMPTION OF VANADIUM, BY END USE

(Kilograms of contained vanadium)

End use	August 1993	September 1993	Year to Date1/
Steel:			
Carbon	101,468	111,308	843,887
Stainless and heat-resisting	3,063	2,991	24,798
Full alloy	66,239	73,342	579,673
High-strength low-alloy	83,260	80,350	722,664
Tool	29,806	27,708	284,899
Unspecified	W	W	W
Total steel	283,836	295,699	2,455,921
Cast irons	W	W	W
Superalloys	928	977	8,690
Alloys (excluding steels and superalloys):			
Cutting and wear-resistant materials	21	33	239
Welding and alloy hard-facing rods and materials	W	W	W
Nonferrous alloys	W	W	197,401
Other alloys2/	W	W	W
Chemical and ceramic uses:			
Catalysts	W	W	W
Other3/	W	W	W
Miscellaneous and unspecified	29,516	23,711	81,031
Total consumption	314,301	320,420	4/2,743,280

W Withheld to avoid disclosing company proprietary data, included with "Miscellaneous and unspecified."
1/Data may change because of revisions.
2/Includes magnetic alloys.
3/Includes pigments.
4/Data do not add to total shown because of independent rounding.

TABLE 4
U.S. EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE), ALUMINUM-VANADIUM MASTER ALLOY, AND OTHER VANADIUM MATERIALS

Material and country	July 1993			Year to Date1/		
	Gross weight (kilograms)	Vanadium content (kilograms)	Value	Gross weight (kilograms)	Vanadium content (kilograms)	Value
Ferrovanadium:						
Canada	17,830	13,371	$128,651	114,498	85,868	$1,018,586
Mexico	4,908	3,680	53,499	34,727	27,260	327,693
Total	22,738	17,051	182,150	149,225	113,128	1,346,279
Aluminum-vanadium master alloy:						
Australia	--	--	--	1,877	--	24,402
Brazil	--	--	--	2,169	--	29,310
Canada	4,644	--	60,370	104,585	--	1,359,612
Egypt	--	--	--	1,440	--	20,100
France	--	--	--	746	--	9,696
Japan	242	--	3,150	242	--	3,150
Korea, Republic of	640	--	8,316	5,325	--	69,217
Mexico	49,810	--	647,531	254,068	--	3,302,868
Romania	--	--	--	3,409	--	44,317
South Africa, Republic of	--	--	--	127	--	2,975
Taiwan	--	--	--	769	--	10,000
United Kingdom	--	--	--	1,061	--	11,520
Venezuela	--	--	--	568	--	7,380
Total	55,336	--	719,367	376,386	--	4,894,547
Oxides and hydroxides, vanadium pentoxide:2/						
Chile	--	--	--	--	1,014	9,639
Finland	--	--	--	--	1,068	12,050
Germany	--	--	--	--	92,434	379,611
Kuwait	--	--	--	--	3,266	24,495
Mexico	--	--	--	--	363	8,512
Pakistan	--	--	--	--	3,161	47,116
Total	--	--	--	--	101,306	481,423
Oxides and hydroxides, other:3/						
Belgium	--	--	--	--	19,489	81,349
Canada	--	20,207	86,738	--	355,051	1,609,854
Japan	--	--	--	--	36,288	143,286
South Africa, Republic of	--	--	--	--	38,102	152,460
Total	--	20,207	86,738	--	448,930	1,986,949
Vanadium metal, including waste and scrap:						
Canada	--	--	--	929	--	26,647
France	--	--	--	6	--	3,000
Germany	40	--	5,639	85	--	13,864
Japan	--	--	--	10,167	--	112,922
South Africa, Republic of	--	--	--	78,799	--	269,869
United Kingdom	--	--	--	251	--	20,868
Total	40	--	5,639	90,237	--	447,170
Salts of oxometallic or peroxometallic acids, other:4/						
Australia	--	--	--	1,497	--	6,206
Brazil	--	--	--	1,000	--	7,210
Canada	32,362	--	82,462	263,240	--	607,929
Colombia	--	--	--	65,393	--	97,210
Germany	--	--	--	125	--	40,391
Japan	95	--	2,822	1,316	--	12,587
Korea, Republic of	--	--	--	184,315	--	102,692
Netherlands	--	--	--	1,604	--	3,185
Taiwan	--	--	--	7,623	--	61,034
United Kingdom	--	--	--	170,000	--	167,110
Venezuela	--	--	--	363	--	3,952
Total	32,457	--	85,284	696,476	--	1,109,506

1/Data may change because of revisions.
2/May include catalysts containing vanadium pentoxide.
3/Includes concentrates and ores.
4/May include vanadates.

Source: Bureau of the Census.

TABLE 5
U.S. EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE), ALUMINUM-VANADIUM MASTER ALLOY, AND OTHER VANADIUM MATERIALS

Material and country	August 1993			Year to Date1/		
	Gross weight (kilograms)	Vanadium content (kilograms)	Value	Gross weight (kilograms)	Vanadium content (kilograms)	Value
Ferrovanadium:						
Canada	27,297	20,472	$216,707	141,795	106,340	$1,235,293
Mexico	--	--	--	34,727	27,260	327,693
Total	27,297	20,472	216,707	176,522	133,600	1,562,986
Aluminum-vanadium master alloy:						
Australia	--	--	--	1,877	--	24,402
Brazil	--	--	--	2,169	--	29,310
Canada	8,557	--	102,044	113,142	--	1,461,656
Egypt	--	--	--	1,440	--	20,100
France	--	--	--	746	--	9,696
Hong Kong	248	--	3,226	248	--	3,226
Japan	--	--	--	242	--	3,150
Korea, Republic of	--	--	--	5,325	--	69,217
Malaysia	195	--	2,534	195	--	2,534
Mexico	45,581	--	592,554	299,649	--	3,895,422
Netherlands	984	--	12,792	984	--	12,792
Romania	--	--	--	3,409	--	44,317
South Africa, Republic of	--	--	--	127	--	2,975
Taiwan	--	--	--	769	--	10,000
United Kingdom	--	--	--	1,061	--	11,520
Venezuela	--	--	--	568	--	7,380
Total	55,565	--	713,150	431,951	--	5,607,697
Oxides and hydroxides, vanadium pentoxide:2/						
Chile	--	--	--	--	1,014	9,639
Finland	--	--	--	--	1,068	12,050
Germany	--	--	--	--	92,434	379,611
Kuwait	--	--	--	--	3,266	24,495
Mexico	--	--	--	--	363	8,512
Pakistan	--	--	--	--	3,161	47,116
Total	--	--	--	--	101,306	481,423
Oxides and hydroxides, other:3/						
Belgium	--	--	--	--	19,489	81,349
Canada	--	99,351	367,493	--	454,402	1,977,347
Japan	--	--	--	--	36,288	143,286
South Africa, Republic of	--	--	--	--	38,102	152,460
Total	--	99,351	367,493	--	548,281	2,354,442
Vanadium metal, including waste and scrap:						
Canada	--	--	--	929	--	26,647
France	--	--	--	6	--	3,000
Germany	--	--	--	85	--	13,864
Japan	--	--	--	10,167	--	112,922
Netherlands	7,568	--	300,298	7,568	--	300,298
South Africa, Republic of	--	--	--	78,799	--	269,869
United Kingdom	--	--	--	251	--	20,868
Total	7,568	--	300,298	97,805	--	747,468
Salts of oxometallic or peroxometallic acids, other:4/						
Australia	--	--	--	1,497	--	6,206
Brazil	--	--	--	1,000	--	7,210
Canada	9,246	--	40,184	272,486	--	648,113
Colombia	1,169	--	5,576	66,562	--	102,786
Germany	--	--	--	125	--	40,391
Japan	--	--	--	1,316	--	12,587
Korea, Republic of	18,470	--	10,791	202,785	--	113,483
Netherlands	--	--	--	1,604	--	3,185
Taiwan	--	--	--	7,623	--	61,034
United Kingdom	--	--	--	170,000	--	167,110
Venezuela	--	--	--	363	--	3,952
Total	28,885	--	56,551	725,361	--	1,166,057

1/Data may change because of revisions.
2/May include catalysts containing vanadium pentoxide.
3/Includes concentrates and ores.
4/May include vanadates.

Source: Bureau of the Census.

TABLE 6
U.S. EXPORTS OF VANADIUM, BY MONTH

Month	Ferrovanadium		Aluminum-vanadium master alloy1/		Vanadium compounds			
					Pentoxide (anhydride)2/		Other3/	
	Gross weight (kilograms)	Value	Gross weight (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value
1993:								
January --------	29,087	$286,107	57,158	$751,981	72,929	$290,994	r/133,446	r/$383,610
February -------	25,365	210,179	114,927	757,257	20,294	117,889	r/130,101	r/624,674
March ----------	16,708	167,155	51,553	670,395	2,452	19,117	r/187,766	r/623,625
April ----------	14,658	135,419	77,054	981,942	1,381	15,028	r/131,091	r/355,489
May ------------	24,238	218,667	63,045	833,951	3,266	24,495	r/78,211	r/364,706
June -----------	16,431	146,602	47,510	621,185	984	13,900	r/139,959	r/572,329
July -----------	22,738	182,150	55,376	725,006	--	--	38,383	172,022
August ---------	27,297	216,707	63,133	1,013,448	--	--	115,526	424,044
Total ---------	176,522	1,562,986	529,756	6,355,165	101,306	481,423	954,483	3,520,499

r/Revised.
1/May include vanadium metal.
2/May include catalysts containing vanadium pentoxide.
3/Includes concentrates, hydroxides, ores, and vanadates.

Source: Bureau of the Census.

TABLE 7
U.S. IMPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE), ALUMINUM-VANADIUM MASTER ALLOY, AND OTHER VANADIUM MATERIAL

Material and country	General imports1/				Imports for consumption2/			
	July 1993		Year to date3/		July 1993		Year to date3/	
	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value
Ferrovanadium:								
Austria	9,767	$89,983	138,335	$1,330,404	9,767	$89,983	138,335	$1,330,404
Belgium	13,872	106,998	13,872	106,998	13,872	106,998	13,872	106,998
Canada	29,267	265,002	229,573	2,252,355	29,267	265,002	229,573	2,252,355
Germany	15,761	95,361	15,761	95,361	15,761	95,361	15,761	95,361
Japan	2,816	23,723	2,816	23,723	2,816	23,723	2,816	23,723
Russia	32,542	234,278	172,232	1,221,277	32,542	234,278	153,507	1,063,578
Switzerland	39,527	308,311	39,527	308,311	--	--	--	--
Tajikistan	--	--	24,563	198,960	--	--	--	--
Ukraine	--	--	40,840	304,200	--	--	40,840	304,200
United Kingdom	--	--	48,932	394,469	--	--	48,932	394,469
Total	143,552	1,123,656	726,451	6,236,058	104,025	815,345	643,636	5,571,088
Aluminum-vanadium master alloy:								
Germany	--	--	12,701	330,515	--	--	12,700	330,515
Oxides and hydroxides, vanadium pentoxide:								
Canada	--	--	1,052	17,481	--	--	1,052	17,481
Germany	--	--	580	12,995	--	--	580	12,995
South Africa, Republic of	--	--	30,129	190,990	--	--	30,129	190,990
Total	--	--	31,761	221,466	--	--	31,761	221,466
Oxides and hydroxides, other:								
Canada	--	--	32	2,929	--	--	32	2,929
Germany	--	--	647	12,464	--	--	647	12,464
Russia	--	--	740	4,467	--	--	740	4,467
South Africa, Republic of	--	--	2,135	8,717	--	--	2,135	8,717
United Kingdom	--	--	4,485	83,589	--	--	4,485	83,589
Total	--	--	8,039	112,166	--	--	8,039	112,166
Vanadium metal, including waste and scrap:								
Germany	--	--	3,792	105,815	--	--	3,792	105,815
Japan	1	1,276	1	1,276	1	1,276	1	1,276
South Africa, Republic of	66,033	504,271	395,413	3,572,258	66,033	504,271	395,413	3,572,258
United Kingdom	--	--	98	14,866	--	--	98	14,866
Total	66,034	505,547	399,304	3,694,215	66,034	505,547	399,304	3,694,215

1/Comprises ferrovanadium and vanadium pentoxide (anhydride) received in the United States, part for immediate consumption and the remainder entering bonded warehouses.
2/Comprises ferrovanadium and vanadium pentoxide (anhydride) received for immediate consumption plus material from bonded warehouses.
3/Data may change because of revisions.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE), ALUMINUM-VANADIUM MASTER ALLOY, AND OTHER VANADIUM MATERIAL

Material and country	General imports1/				Imports for consumption3/			
	August 1993		Year-to-date2/		August 1993		Year-to-date2/	
	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value
Ferrovanadium:								
Austria	--	--	138,335	$1,330,404	--	--	138,335	$1,330,404
Belgium	41,734	319,970	55,606	426,968	--	--	13,872	106,998
Canada	23,482	238,733	253,055	2,491,088	23,482	238,733	253,055	2,491,088
Germany	24,647	148,159	40,408	243,520	24,647	148,159	40,408	243,520
Japan	--	--	2,816	23,723	--	--	2,816	23,723
Russia	101,278	624,566	273,510	1,845,843	62,977	372,822	216,484	1,436,400
Switzerland	--	--	39,527	308,311	31,556	246,137	31,556	246,137
Tajikistan	--	--	24,563	198,960	--	--	--	--
Ukraine	--	--	40,840	304,200	--	--	40,840	304,200
United Kingdom	--	--	48,932	394,469	--	--	48,932	394,469
Total4/	191,141	1,331,428	917,591	7,567,486	142,662	1,005,851	786,297	6,576,939
Aluminum-vanadium master alloy:								
Germany	6,350	168,566	19,051	499,081	6,350	168,566	19,051	499,081
Oxides and hydroxides, vanadium pentoxide:								
Canada	--	--	1,052	17,481	--	--	1,052	17,481
Germany	--	--	580	12,995	--	--	580	12,995
South Africa, Republic of	--	--	30,129	190,990	--	--	30,129	190,990
Total	--	--	31,761	221,466	--	--	31,761	221,466
Oxides and hydroxides, other:								
Canada	--	--	32	2,929	--	--	32	2,929
Germany	--	--	647	12,464	--	--	647	12,464
Russia	--	--	740	4,467	--	--	740	4,467
South Africa, Republic of	--	--	2,135	8,717	--	--	2,135	8,717
United Kingdom	--	--	4,485	83,589	--	--	4,485	83,589
Total	--	--	8,039	112,166	--	--	8,039	112,166
Vanadium metal, including waste and scrap:								
Germany	3,731	83,036	7,523	188,851	3,731	83,036	7,523	188,851
Japan	--	--	1	1,276	--	--	1	1,276
South Africa, Republic of	63,295	487,639	458,708	4,059,897	63,295	487,639	458,708	4,059,897
United Kingdom	1	2,670	99	17,536	1	2,670	99	17,536
Total	67,027	573,345	466,331	4,267,560	67,027	573,345	466,331	4,267,560

1/Comprises ferrovanadium and vanadium pentoxide (anhydride) received in the United States, part for immediate consumption and the remainder entering bonded warehouses.
2/Data may change because of revisions.
3/Comprises ferrovanadium and vanadium pentoxide (anhydride) received for immediate consumption plus material from bonded warehouses.
4/Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 9
U.S. IMPORTS1/ OF VANADIUM BEARING ASH, RESIDUE, SLAG, AND OTHER MATERIALS

Material and country	July 1993			Year to date2/		
	Gross weight (kilograms)	Vanadium pentoxide content (kilograms)	Value	Gross weight (kilograms)	Vanadium pentoxide content (kilograms)	Value
Ash and residues:						
Barbados	60,000	18,000	$7,937	60,000	18,000	$7,937
Canada	191,651	95,077	121,723	772,306	350,569	420,427
Dominican Republic	--	--	--	98,122	80,000	60,000
Germany	49,340	11,637	9,947	319,742	94,464	82,358
Israel	--	--	--	145,030	48,396	77,299
Italy	--	--	--	317,700	85,506	105,985
Jamaica	--	--	--	20,370	7,130	17,926
Mexico	191,140	66,475	44,541	846,525	392,925	201,485
Netherlands	16,200	3,726	4,713	33,518	12,694	8,315
Netherlands Antilles	--	--	--	43,725	9,182	5,422
Portugal	--	--	--	64,000	16,000	84,874
United Kingdom	9,368	1,874	10,327	197,668	56,023	42,478
Venezuela	--	--	--	120,032	60,257	63,218
Total	517,699	196,789	199,188	3,038,738	1,231,146	1,177,724
	From the Manufacture of Iron and Steel					
Slag, Dross, Etc.:						
South Africa, Republic of	--	--	--	652,237	--	860,953
Total	--	--	--	652,237	--	860,953
Other materials:						
Argentina	--	--	--	15,315	7,658	5,121
Canada	--	--	--	32,644	15,943	20,511
France	18,000	2,891	6,131	159,028	14,173	54,167
Total	18,000	2,891	6,131	206,987	37,774	79,799

1/Quantities for general imports and imports for consumption are identical.
2/Data may changes because of revisions.

Source: Bureau of the Census.

TABLE 10
U.S. IMPORTS1/ OF VANADIUM BEARING ASH, RESIDUE, SLAG, AND OTHER MATERIALS

Material and country	August 1993			Year to date2/		
	Gross weight (kilograms)	Vanadium pentoxide content (kilograms)	Value	Gross weight (kilograms)	Vanadium pentoxide content (kilograms)	Value
Ash and residues:						
Barbados	--	--	--	60,000	18,000	$7,937
Canada	--	--	--	772,306	350,569	420,427
Dominican Republic	--	--	--	98,122	80,000	60,000
Germany	49,171	24,585	$13,059	368,913	119,049	95,417
Israel	--	--	--	145,030	48,396	77,299
Italy	--	--	--	317,700	85,506	105,985
Jamaica	--	--	--	20,370	7,130	17,926
Mexico	283,020	141,508	65,952	1,129,545	534,433	267,437
Netherlands	--	--	--	33,518	12,694	8,315
Netherlands Antilles	--	--	--	43,725	9,182	5,422
Portugal	--	--	--	64,000	16,000	84,874
United Kingdom	--	--	--	197,668	56,023	42,478
Venezuela	--	--	--	120,032	60,257	63,218
Total	332,191	166,093	79,011	3,370,929	1,397,239	1,256,735
	From the Manufacture of Iron and Steel					
Slag, Dross, Etc.:						
South Africa, Republic of	--	--	--	652,237	--	860,953
Total	--	--	--	652,237	--	860,953
Other materials:						
Argentina	--	--	--	15,315	7,658	5,121
Canada	--	--	--	32,644	15,943	20,511
France	--	--	--	159,028	14,173	54,167
Total	--	--	--	206,987	37,774	79,799

1/Quantities for general imports and imports for consumption are identical.
2/Data may change because of revisions.

Source: Bureau of the Census.

TABLE 11
U.S. IMPORTS OF VANADIUM ORE AND MISCELLANEOUS VANADIUM CHEMICALS

Material and country	General imports1/				Imports for consumption2/			
	July 1993		Year to date3/		July 1993		Year to date3/	
	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value
Vanadates:								
Canada	--	--	84	$3,250	--	--	84	$3,250
France	16	$39,726	530	176,379	16	$39,726	530	176,379
Germany	--	--	14,652	133,387	--	--	14,652	133,387
South Africa, Republic of	--	--	17,865	96,711	10,260	81,698	22,059	169,528
United Kingdom	--	--	1,505	48,872	--	--	1,505	48,872
Total	16	39,726	34,636	458,599	10,276	121,424	38,830	531,416
Vanadium carbides:								
Austria	--	--	862	121,863	--	--	862	121,863
Canada	4,549	140,919	36,505	816,805	4,549	140,919	36,505	816,805
Germany	4,072	348,836	16,301	1,270,207	4,072	348,836	16,301	1,270,207
Japan	--	--	417	68,765	--	--	417	68,765
Mexico	--	--	57	1,428	--	--	57	1,428
Russia	--	--	809	38,242	--	--	809	38,242
United Kingdom	1,698	109,201	8,735	725,535	1,698	109,201	8,735	725,535
Total4/	10,318	598,956	63,686	3,042,845	10,318	598,956	63,686	3,042,845
Vanadium hydrides and nitrides:								
Canada	--	--	4,361	5,130	--	--	4,361	5,130

1/Comprises vanadium ore and miscellaneous vanadium chemicals received in the United States, part for immediate consumption and the remainder entering bonded warehouses.
2/Comprises vanadium ore and miscellaneous vanadium chemicals received for immediate consumption plus material withdrawn from bonded warehouses.
3/Data may change because of revisions.
4/Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 12
U.S. IMPORTS OF VANADIUM ORE AND MISCELLANEOUS VANADIUM CHEMICALS

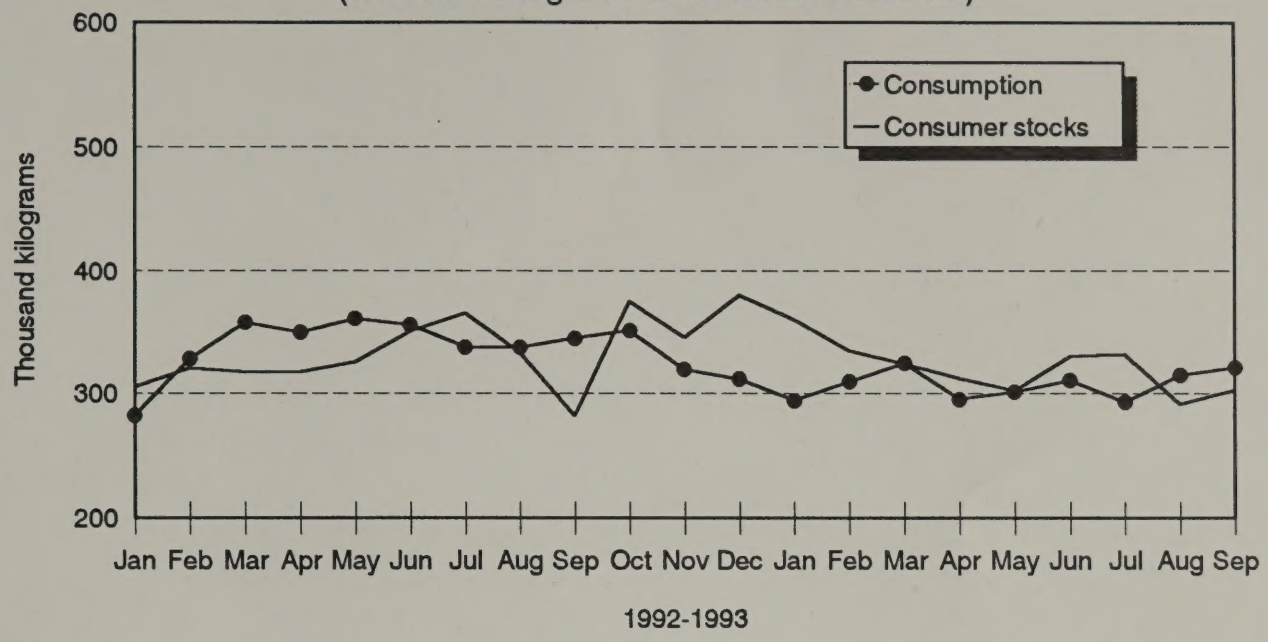
Material and country	General imports1/				Imports for consumption2/			
	August 1993		Year to date3/		July 1993		Year to date3/	
	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value	Vanadium content (kilograms)	Value
Vanadates:								
Canada	--	--	84	$3,250	--	--	84	$3,250
France	--	--	530	176,379	--	--	530	176,379
Germany	3,645	$35,022	18,297	168,409	3,645	$35,022	18,297	168,409
South Africa, Republic of	--	--	17,865	96,711	--	--	22,059	169,528
United Kingdom	--	--	1,505	48,872	--	--	1,505	48,872
Total	3,645	35,022	38,281	493,621	3,645	35,022	42,475	566,438
Vanadium carbides:								
Austria	--	--	862	121,863	--	--	862	121,863
Canada	3,552	100,726	40,057	917,531	3,552	100,726	40,057	917,531
China	479	65,092	479	65,092	479	65,092	479	65,092
Germany	424	37,271	16,725	1,307,478	424	37,271	16,725	1,307,478
Japan	--	--	417	68,765	--	--	417	68,765
Mexico	--	--	57	1,428	--	--	57	1,428
Russia	518	22,200	1,327	60,442	518	22,200	518	60,442
United Kingdom	939	106,928	9,675	832,463	939	106,928	9,675	832,463
Total4/	5,913	332,217	69,599	3,375,062	5,913	332,217	68,790	3,375,062
Vanadium hydrides and nitrides:								
Canada	--	--	4,361	5,130	--	--	4,361	5,130

1/Comprises vanadium ore and miscellaneous vanadium chemicals received in the United States, part for immediate consumption and the remainder entering bonded warehouses.
2/Comprises vanadium ore and miscellaneous vanadium chemicals received for immediate consumption plus material withdrawn from bonded warehouses.
3/Data may change because of revisions.
4/Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

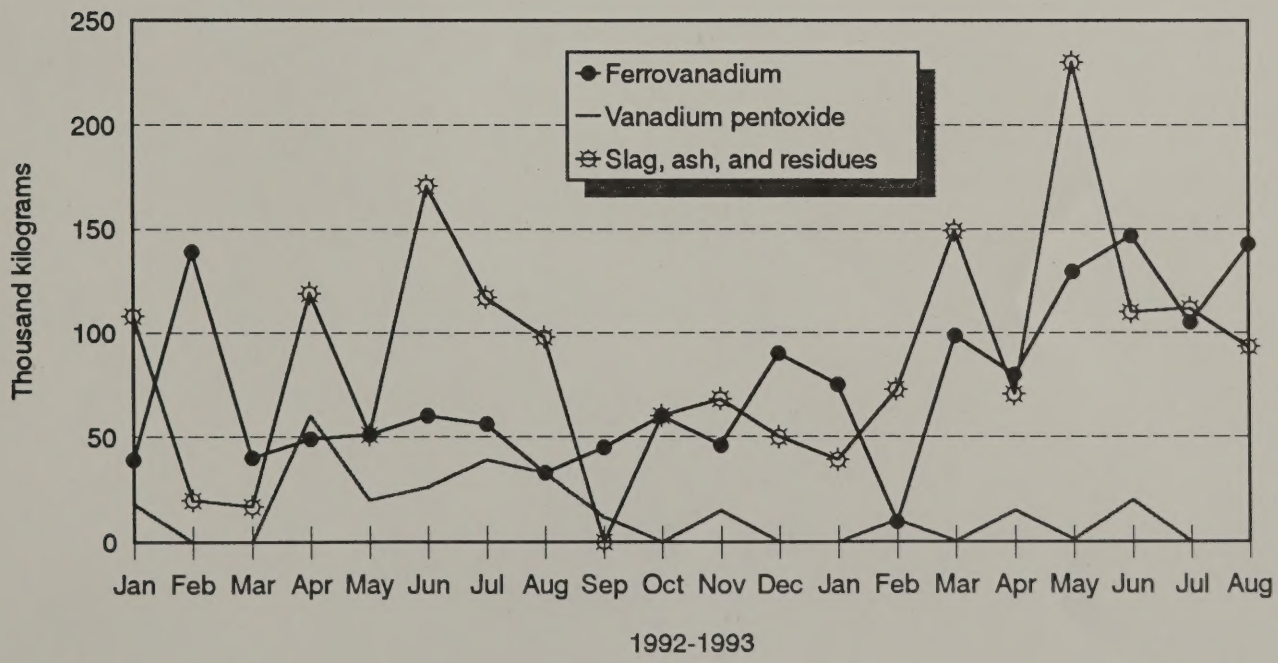
VANADIUM: U.S. CONSUMPTION AND CONSUMER STOCKS

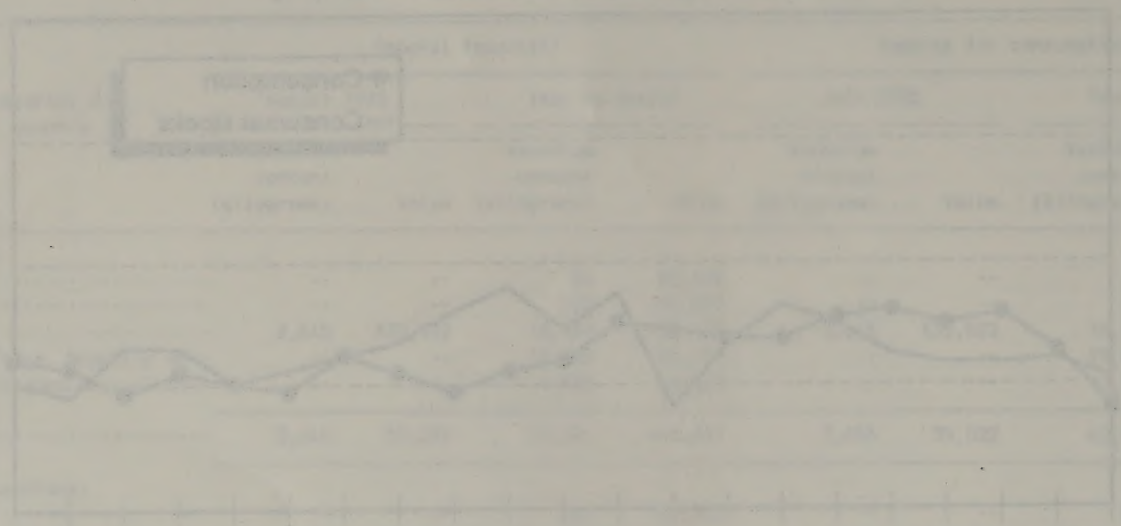
(Thousand kilograms of contained vanadium)

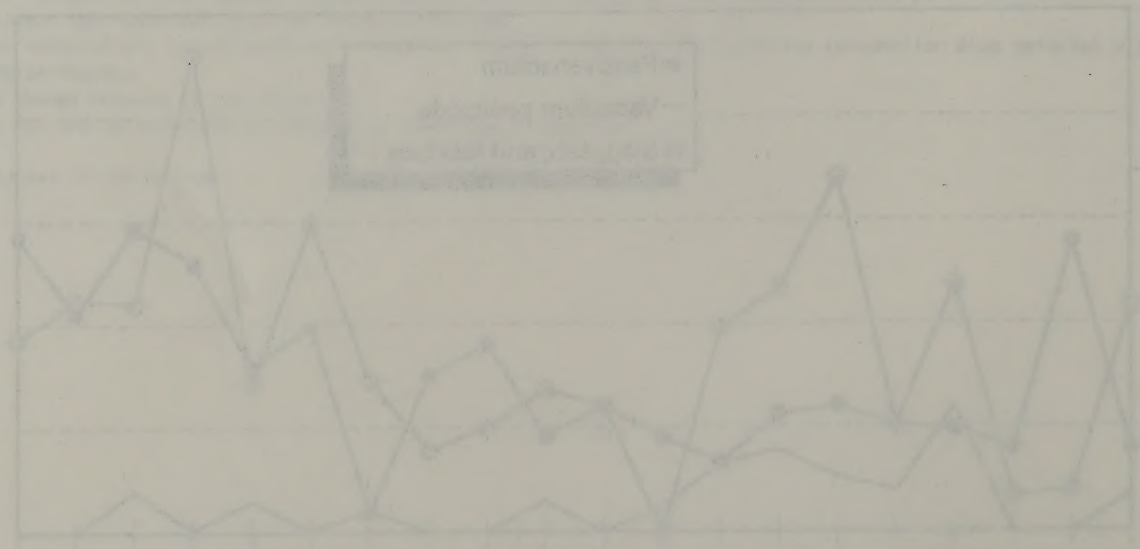


VANADIUM: U.S. IMPORTS OF SELECTED MATERIALS

(Thousand kilograms of contained vanadium)







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